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NASF Forester's Notebook Still Available

Bruce Miles, Director of the Texas Forest Service, informs us that the TFS still has copies of the "Forester's Handbook for Reducing Bark Beetle and Disease-Caused Losses in Southern Pines" available to the public at a nominal cost. The handbook (see announcement in PM News #53) was printed under the auspices of the National Association of State Foresters and offered for sale through TFS. It is a collection of existing ESPBRAP/IPM Program-sponsored "how-to" handbooks (dealing with SPB and related problems) that has been assembled into a three-ring binder for easy reference. During this year of epidemic beetle activity, it should prove to be a very valuable source of information to the forester. Write to: Director, Texas Forest Service, Texas A&M University System, College Station, TX 77843 or call 409/845-2641 for more information.

Louisiana Beetle Problem Worsens

A recent article in an Alexandria (LA) newspaper describes a steadily increasing beetle outbreak in the State, with areas in Natchitoches Parish especially hard hit. The largest spot identified in the Parish spans a nearly 1,500-acre tract in the Kisatchie National Forest. Foresters also report sighting 200- and 300-acre spots in the same area. As of this writing, more than 300 separate spots have been detected in aerial surveys over the Parish, according to a spokesman for the Louisiana Office of Forestry. SPB is also reported to be at epidemic levels in Grant, LaSalle, Catahoula, and Caldwell Parishes.

Affected districts are presently putting every available forester on the SPB problem, and district offices plan to notify owners of infested stands and make control recommendations. The LOF is recommending a salvage cut with a buffer zone at least tree length ahead of

actively infested trees, even though a current market slowdown may make salvage cuts uneconomical.

Statewide, the LOF reports that some 3,700 beetle spots have been detected, not counting the 2,900 that have been detected since last September on the Kisatchie NF. Officials fear that hundreds of thousands of dollars in direct income to State landowners could be lost if the beetles are not stopped. (See related story on p. 3).

30th SFIWC Highlights Busy Summer

The Southern Forest Insect Work Conference held its annual meeting at the Inn on the Plaza in downtown Asheville, NC, July 29-August 1. Keynote Speaker was Sharon Ossenbruggen (NE Station) on "Discovering the Tree: A Delicate Balance." Presentations on the first day included an "Overview of Atmospheric Deposition Problems" by invitational speaker Ellis Cowling (NC State). There was also a panel discussion of acid rain/insect interactions, moderated by Fred Hain of NC State. The concurrent workshops that followed were devoted to gypsy moth technology, urban/forest synthetic insect attractants, and fungus/insect interactions. A second group of concurrent workshops was devoted to currently used pesticides and forest practice and non-pest arthropods. The second day's invitational speakers were Michael Cooper (Tennessee Dept. of Agriculture), discussing gypsy moth eradication efforts in Tennessee and North Carolina, and Carrol Voss of Agrotors, Inc., Gettysburg, PA, who gave a "Perspective of an Aerial Applicator's Gypsy Moth Control Efforts." They were followed by a panel discussion on gypsy moth status moderated by Garland Mason (NE). Concurrent workshops for the day included: *Morning*: insect growth regulators and mechanisms of pine resistance to bark beetles; *Afternoon*: available pest management computer programs. The final day's invitational speakers, Ray

Kriner (Rutgers University) and Forrest Oliveria (R-8 FPM) described techniques of insect photography and SPB in southern wildernesses, respectively.

Highlights of the gathering included a banquet at the Biltmore Estate on July 31 and the traditional SFIWC Photo Salon, which served as a showcase for photographers among the conferees to exhibit both their serious and humorous work. A special meeting activity was a reunion of SFIWC pioneers (those who attended the very first SFIWC) and their guests. The event was hosted by retired Forest Service entomologist Joe Kowal, an Asheville resident, whom many of our readers may remember.

Court Outlines Wilderness Cutting Rules

The Texas Forest Service reports that a Federal judge has ruled that the U.S. Forest Service can continue control efforts aimed at stopping SPB in wilderness areas in the State under certain conditions. (Environmental groups had earlier filed for an injunction to stop these controls until their suit to halt SPB control in Texas wildernesses had been decided). The court-ordered stipulations under which FS controls can continue are: 1) End cutting of hardwoods; 2) control SPB only to protect red cockaded woodpecker colonies or adjacent non-wilderness areas; 3) fell trees toward the center of the infestation; 4) use natural barriers when possible; and 5) provide environmental groups with control locations and dates. The suit is expected to go to trial this fall.

Texas Issues SPB News Update

A progress report from the East Texas Demonstration Project observes that SPB infestations are being detected at an "alarming" rate in the State this year. So far, more than 8,000 infestations have been reported to the Texas Forest Service's Pest Control Section in Lufkin, 3,000 of them on Forest Service land. Numerous large infestations are occurring south of Nacogdoches; and further north, "hot" spots have been observed in the Rusk area and in Panola County. The Texas report notes that control efforts are being seriously hampered by poor timber markets, and the State Forester has appealed to forest industry to purchase beetle-killed timber until SPB activity declines.

The Texas Pest Control Section also describes a new project it has initiated this year to determine what stand characteristics are associated with origin and growth of SPB infestations in young pine plantations. (Numerous SPB spots started in young slash and loblolly pines under age 15 during the past year. These stands are generally considered low hazard for SPB.) In several of the plantations being sampled, stand disturbance has been associated with spot origin. Further information will be forthcoming from the Demo Project as this study progresses.

Public Inquiries Increase as SPB Intensifies

With the southern pine beetle outbreak at full throttle in five southern States, the IPM Program is receiving a flood of requests for publications dealing with this pest. This seems an appropriate time to remind our readers of the printed material that is still available through the Program office to help provide the information they need. A synopsis follows.

Publication & Description

USDA Series:

- Agriculture Handbook 558 (1979) — Field guide for ground checking SPB spots
- Agriculture Handbook 560 (1980) — Aerial observer's guide to recognizing and reporting SPB spots
- Agriculture Handbook 563 (1980) — How to identify common insect associates of SPB
- Agriculture Handbook 564 (1980) — Woodpeckers and the SPB
- Agriculture Handbook 567 (1980) — Loran-C radio navigation as an aid to SPB surveys
- Agriculture Handbook 572 (1981) — Guide for using beetle-killed southern pine based on tree appearance
- Agriculture Handbook 575 (1981) — Direct control methods for SPB
- Agriculture Handbook 576 (1980) — Silviculture can reduce losses from SPB
- Agriculture Handbook 597 (1982) — Management strategies for reducing losses caused by fusiform rust, annosus root rot, littleleaf disease
- Agriculture Handbook 634 (1985) — Identification and biology of southern pine bark beetles
- Agriculture Handbook 645 (1985) — Rating the susceptibility of stands to SPB attack
- Agriculture Information Bull. 438 (1981) — SPB: program accomplishments report
- Home & Garden Bulletin 226 (1979) — SPB can kill your ornamental pine

Technical Bulletin 1612 (1981) — Site, stand and host characteristics of SPB infestations

Technical Bulletin 1613 (1979) — Evaluating control tactics for SPB

Technical Bulletin 1630 (1980) — Modeling SPB populations (proceedings papers)

(In addition to these, TB 1703 — “Thinning practices in southern pines — with pest management recommendations”; Agric. Handb. 641 — “Distinguishing immatures of insect associates of southern pine bark beetles”; Gen. Tech. Rep. WO-47 — “Utilization of beetle-killed southern pine”; and Agric. Inf. Bull. 491 — “IPM in the South, highlights of a 5-year program” are expected to be off-press this year.)

Cooperator Issues:

TFS Circular 267 (1984) — How to conduct an SPB aerial detection survey

Clemson Coop. Ext. Svc. — Forestry Leaflet No. 5 (1983) — Identifying the southern pine beetle

Clemson Coop. Ext. Svc. — Forestry Leaflet No. 6 (1983) — Salvage removal — a method for controlling southern pine beetle infestations

Clemson Coop. Ext. Svc. — Forestry Leaflet No. 7 (1983) — Cut and leave — a method for controlling southern pine beetle infestations

Clemson Coop. Ext. Svc. — Forestry Leaflet No. 8 (1983) — Estimating potential loss from the southern pine beetle

Clemson Coop. Ext. Svc. — Forestry Leaflet No. 9 (1983) — Portable sawmill operators in South Carolina

Clemson Coop. Ext. Svc. — Forestry Leaflet No. 10 (1983) — So . . . you want to buy a portable sawmill

Clemson Coop. Ext. Svc. — Forestry Leaflet No. 11 (1984) — Predicting potential loss to southern pine beetle in natural stands in the Piedmont

Clemson Coop. Ext. Svc. — Forestry Leaflet No. 12 (1984) — Don't leave your trees to rot . . .

Clemson Coop. Ext. Svc. — Forestry Leaflet No. 13 (1984) — Predicting potential loss to the southern pine beetle in the Coastal Plain

Clemson Coop. Ext. Svc. — Forestry Leaflet No. 14 (1984) — Estimating potential loss from southern pine beetle in the Coastal Plain

Miss. Agric. & For. Exp. Sta. Bull. 917 (1983) — Southern pine beetle: the host dimension

MP 1533- Tex. Agric. Exp. Sta. (1984) — History, status and future needs for entomology research in southern forests

Station Papers

Southeastern Station: Gen. Tech. Rep. SE-21 (1983) — Field and laboratory evaluations of insecticides for SPB control

Southern Station: Gen. Tech. Rep. SO-56 (due off press Sept. 1985) — Integrated pest management research symposium: the proceedings

Forestry Fact Sheets

For. Fact Sheets 24-31 (1982-85) — Various aspects of control, utilization, and computer prediction and hazard rating systems

(In addition, Fact Sheets 1-23, many of which have been revised and reprinted, deal with similar subject matter.)

Requests for any of these publications should be directed to: IPM Program, 2500 Shreveport Highway, Pineville, LA 71360; phone 318/473-7250.

Beetle Resolutions Endorse SPB Controls

The newsletter of the Texas Forestry Association recently published a “beetle resolution” filed in the State’s House of Representatives endorsing the U.S. Forest Service’s control measures for SPB in Texas. H.R. 475 describes the problem of beetles crossing property boundaries and causing economic hardship to private landowners, and alludes to the FS “responsibility to protect owners . . . from losses caused by situations originating on” Federal lands.

A similar resolution by the Trinity County (TX) Landowners Association supports “aggressive efforts” to control SPB as essential to the timber-growing land and to the landowners in the county, and refers to the SPB’s economic threat to forest industry in Texas. It calls upon both Federal and State Forest Services, private landowners, and environmentalists to pursue every available technical method of inhibiting SPB spread in the State’s forests, including the wilderness areas.

A third beetle resolution was passed recently by the Texas Forestry Association’s Executive Committee. It is worded similarly to the Trinity decree, with a clause strongly affirming the importance of scientific and professional management of all forest resources.

LA Group Meets on SPB

A statewide conference on the southern pine beetle met in July at the Alexandria branch of Louisiana State University to mobilize forestry forces for combating the pest, which has already destroyed nearly 33,000 acres of trees in the State valued at more than \$23 million. In scheduling the meeting, State Forester Michael Mety observed that the beetles were spreading faster than

foresters had experienced in the past. Conference participants included foresters; entomologists; representatives of various public agencies and State Congressional staffs; industry; State and Federal forestry officials, and the media. Susan Branham attended on behalf of the IPM Program. The severity of Louisiana's SPB situation was discussed, along with control measures needed by landowners and available sources of assistance for dealing with the problem. In describing treatment rationale, Rich Goyer of L.S.U., State pest control advisor, emphasized preventive silviculture and early detection.

SPB has now been declared epidemic in 17 parishes in Louisiana (up from 4 in May!), and the State Forester reports the outbreak shows no signs of abating. Among the immediate actions being considered by the State forestry agency are requests for 1) provision of State resources in combating the outbreaks, 2) commitment by industry of a market for beetle-killed wood, and 3) Federal financial assistance. The State is officially recommending salvage cutting and the use of buffer strips. But concern has been expressed over market conditions that might make utilization of the infested material difficult and result in economic hardship for timber owners. Mety stated that 7 million acres of forest land in the State is regarded as susceptible to SPB, much of it in private ownership.

Surveillance flights by the Louisiana Office of Forestry through July disclosed over 4,200 multitree infestations affecting more than 22,000 acres of non-Federal land. U.S. Forest Service figures released at the same time show more than 3,300 spots developing on nearly 10,500 acres of the Kisatchie National Forest since last fall, with the largest reportedly some 2,500 acres in size. In his report at the Alexandria meeting, Kisatchie Supervisor Bob Joslin noted that 4,300 acres of wilderness on the Forest have been affected by SPB. (See related story on p. 1.)

Wilderness Conference Volume in Press

Dave Kulhavy of Stephen F. Austin State University reports that the papers presented at this past spring's wilderness conference (see PM News #54) are being published in a volume entitled "Wilderness and Natural Areas in the East: A Management Challenge," edited by Kulhavy and Dick Conner of the Forest Service's Southern Station. The book will contain about 250 pages plus illustrations, and has an anticipated printing date of October 1.

The conference was held in May in Nacogdoches, TX, amid considerable media interest, to address wilderness/natural areas management issues affecting the eastern U.S. It was cosponsored by S.F.A., the Forest Service, and the Wilderness Society. A conference high-

light was the Protection session where many matters relating to SPB control in wilderness were discussed. Inquiries should be directed to Dave at the School of Forestry, Stephen F. Austin State University, Box 6109, SFA Station, Nacogdoches, TX; phone 409/569-3301.

When They're Hot, They're Hot!

Bill Hoffard of R-8's Forest Pest Management Staff in Asheville, NC, was recently detailed to the Pineville, LA, office to assist with collection of pheromone data since the group there was shorthanded due to the burgeoning SPB epidemics in Louisiana, Mississippi, and Texas! Bill was also asked to provide training for personnel of the National Forests in Texas on SPB ground detection procedures.

Bill told PM News that many sources consider the current outbreak of considerably greater intensity than the very serious epidemic that occurred hereabouts 12 years ago. He noted that much SPB damage is recognizable from the air in the course of routine commercial airline travel through the mid-South. Bill also verified that Texas had already exceeded its record number of SPB spots with 2 months of high beetle activity still ahead.

Hoffard reported that SPB activity is also increasing in Georgia, especially on the Oconee National Forest, where there are a number of spots with 20-to-1 green-to-red tree ratios, indicating a virulent SPB population. Activity is also above average on a couple of Piedmont districts in South Carolina, and on the Wambaw and Witherbee Districts (Francis Marion National Forest, SC), tree stress due to increases in beetle activity are associated with high fire incidence.

Billings Reports on Haitian Beetle Problem

For the benefit of our readership, excerpted here are some findings contained in Ron Billings' (Texas Forest Service) report on his evaluation of pine tree mortality in Haiti. As noted in our last issue, Ron undertook this mission on behalf of the USDA Forestry Support Program of the Office of International Development and AID.

Ron's examination of dead and dying pines in local areas in the mountains of Haiti in April 1985 disclosed the presence of two species of engraver beetles, *Ips grandicollis* and *Ips calligraphus*. Both were observed colonizing downed log sections or trees stressed from other causes. (Likely causes were given as root damage

from past hurricanes, eroded soil, root diseases, soil compaction, nutrient deficiency, insufficient rainfall, construction damage, or a combination of these factors.) Ron's role was to recommend immediate bark beetle control measures as well as future preventive approaches.

Two forested sites were visited, with the primary one of concern an area supporting dead and unhealthy pines (*Pinus occidentalis*) located some 30 km from Port-Au-Prince on steep terrain at 4,300-foot elevation. Ron reported finding a number of standing dead trees and several live ones that exhibited a variety of poor vigor and stress symptoms. Though no currently infested trees were observed, recently cut log sections from a dead pine showed evidence of bark beetle infestation. Beetles were collected for identification from these sections and by means of pheromone traps (baited with frontalinal, *alpha*-pinene, ipsenol, ipsdienol and *cis*-verbenol). In addition to the two engraver beetle species mentioned earlier, Billings found two or three smaller scolytids. The specimens were sent for positive identification to Dr. Stephen Wood (see PM News #54 for a report). No evidence of *Dendroctonus frontalis* or *Ips avulsus* was observed, but other parasitic and predator insects were discovered under the bark of the beetle-infested pines.

Ron's diagnosis was that bark beetles in Haiti are presently limiting their attacks to trees suffering severe stress from other causes, thus playing a secondary role in the Haitian pine mortality and decline problem. Several pines at the examination site showed chlorotic foliage, dead branches, or sparse foliage with short-tufted needles on branch ends, resembling shortleaf pines in the southeastern U.S. afflicted with littleleaf disease. Ron believes the most likely single cause of tree stress at this site to be root system damage resulting from recent hurricanes. Such stress may have been aggravated by deficient rainfall or root pathogens, theorizes Ron. This combination of factors could have induced bark beetle attack. Thus, direct control would not solve the problem, and sporadic attacks continue to be likely as long as the trees are in a stressed condition.

At a second examination site, trees were younger and healthier, having apparently escaped hurricane damage although some did show the "littleleaf syndrome" or symptoms of "needle cast" disease.

Ron recommended the following management practices for bark beetle problems: 1) Avoid placing freshly-cut pine logs in contact with (or close to) standing trees; peel and burn bark on beetle-killed pines to reduce breeding material; 2) avoid locating new roads adjacent to pine trees to prevent soil changes; 3) avoid bole and root wounding, since the resin from open wounds attracts bark beetles; 4) promptly fell and remove pines that are potential breeding material for *Ips* spp.; 5) maintain vigor by watering trees during droughts; 6) monitor stands to detect mortality trends; apply insecticides

(lindane, Dursban®) to protect high-value trees at first sign of beetle attack; 7) consider thinning overdense stands to promote growth, and 8) target stressed trees for removal. Ron also emphasized identifying causal factors of poor tree and stand condition and suggested approaches for diagnosing problems. His final recommendation was prompt disposal of hurricane-damaged trees to thwart a bark beetle buildup.

Ron left a number of other aids with his Haitian hosts, including pheromone traps and references on such subjects as nutrient deficiencies, bark beetle biology, direct control, and prevention. One of the latter was the IPM Program's "Forester's Handbook for Reducing Bark Beetle and Disease-Caused Losses in Southern Pines," described in previous issues of PM News. Ron also reports assisting the AID entomologist with tentative diagnosis of two fruit tree problems.

PM News thanks Ron for sharing this information with us. If our readers are interested in further details of Ron's experience in Haiti, they may contact him at Pest Control Section, Texas Forest Service, P.O. Box 310, Lufkin, TX 75901; phone 409/639-8170.

R-8 Impact Statement on SPB Suppression Forthcoming

The Forest Service's Southern Region is in the process of preparing a Regionwide Environmental Impact Statement on southern pine beetle suppression to encompass all Federal and non-Federal lands in the Region. The document will include a site specific analysis and disclosure of environmental effects of SPB suppression on wilderness areas in Texas, Louisiana, and Mississippi. Overall guidance for the project is being provided by Ken Swain of Forest Pest Management, R-8 — Atlanta, and Jean P. Kruglewicz, an environmental coordinator there. An interdisciplinary core team has been appointed to work on the project at the Regional office over the next several months. A notice of intent to prepare an EIS on Southern Pine Beetle Suppression in the Southern Region will appear shortly in the Federal Register. A draft statement is expected to be available by October 1985.

SC Communications Network Speeds Data Transfer

A new computerized information system designed to aid resource managers in South Carolina has been developed by Clemson University and described in a recent edition of "The Compiler," newsletter of the Forest Resource Systems Institute. The system is an outgrowth of

one devised during 1984 to facilitate information handling for forest pest managers (see article in PM News #50). That system was designed to run on a Radio Shack microcomputer with county extension agents as its primary users. The objective was to provide timely information on forest management with emphasis on reducing losses to pests.

As the initial system developed, other departments at Clemson expressed interest in computerized information and began devising their own plans. It was soon obvious that a unified system would not only be more economical but also would eliminate much duplication. So Clemson's Computer Center and its Colleges of Agriculture and Forestry combined forces to develop a unified interactive information network known as CUFAN.

Although extension personnel are still the primary users, this new system has been broadened to include all resource managers. It provides timely information on such things as spray schedules, meeting dates, seasonal information, and reminders. Eventually, the system will also be adapted for electronic mail operations within South Carolina.

CUFAN uses a DEC VAX minicomputer. Extension specialists develop information files on both Radio Shack and IBM microcomputers and these are transmitted electronically to the VAX and stored in a CUFAN "directory." Extension offices can call CUFAN 24 hours a day using the Radio Shack equipment. DEC VAX is menu-driven and user friendly, and though still in its early stages, refinements are anticipated as the system is used. More information about CUFAN can be obtained from Stephen K. Nodine, Chairman, State and Extension Technical Committee, Clemson University, Clemson, SC 29631.

New IPM Slide-Tape Program Available

Ginger Rutherford passes along the information that a new slide-tape program entitled "Applying Integrated Pest Management in Southern Pine Forests" is now available through the SOUTHFORNET facility. This program explains the integrated pest management approach to control of major pests of southern pines at different stages of the tree's development. In addition to this tape, there are a number of older tapes available from the same source that are still pertinent to SPB problem-solving:

"Control Methods for the Southern Pine Beetle" describes in detail the four major treatment methods: salvage, cut-and-leave, chemical control, and pile-and-burn.

"The Biology and Identification of SPB" presents a detailed description of SPB infestation symptoms in pine and of the beetle itself, its life stages and insect associates.

"Insects Associated with the Southern Pine Beetle" describes identification of SPB associates: pine engravers, black turpentine beetles, pine sawyers, ambrosia beetles.

"Building Among the Pines" discusses protection of trees during construction activities and how to minimize bark beetle incidence and pine damage.

"Silviculture Can Reduce SPB Losses" covers the need for using good forest management practices to prevent or reduce SPB-caused mortality in pine stands.

"Chemical Control of SPB" describes the use of three insecticides (Lindane, Dursban®, Sumithion®) for chemical control of SPB.

These slide sets all include a script, slides, and a cassette tape with audible and inaudible tones. For further information, contact: SOUTHFORNET, Science Library, University of Georgia, Athens, GA 30602.

Other Publications

Anonymous. SPBEEP — a computer program. For. Bull. R8-FB/P17. Atlanta, GA: U.S. Department of Agriculture, Forest Service, Southern Region; 1985. 1 p. (SPB Fact Sheet #31).

Anonymous. MS HAZARD B — a SPB hazard rating model. For. Bull. R8-FB/P18. Atlanta, GA: U.S. Department of Agriculture, Forest Service, Southern Region; 1985. 2 p. (SPB Fact Sheet #32).

Blanche, C.A.; Hodges, J.D.; Nebeker, T.E. Changes in bark beetle susceptibility indicators in a lightning-struck loblolly pine. Can. Jour. For. Res. 15(2): 397-399; 1985.

Payne, T.L.; Kudon, L.H.; Walsh, K.D.; Berisford, C.W. Influence of infestation density on suppression of *D. frontalis* infestations with attractant. Ziet. angew. Entomol. 99: 39-43; 1985.

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Mention of pesticides does not constitute a recommendation for their use, nor does it imply that the uses discussed here have been registered. All uses of pesticides must be registered by appropriate State and/or Federal agencies before they can be recommended.

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